EXHIBIT 5

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

CASE NO. 2:24-CV-00093-JRG-RSP

VIRTAMOVE, CORP.,

Plaintiff,

vs.

HEWLETT PACKARD ENTERPRISE COMPANY,

Defendant.

CASE NO. 2:24-CV-00064-JRG-RSP

VIRTAMOVE, CORP.,

Plaintiff,

vs.

INTERNATIONAL BUSINESS MACHINES CORP.,

Defendant.

VIDEOTAPED / REALTIMED DEPOSITION OF

DR. ANGELOS STAVROU

(Conducted Remotely)

FRIDAY, FEBRUARY 7, 2025

9:03 a.m. CST

Reported by: Pat English-Arredondo, CSR, RMR, CRR

Job No. 10232

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                     APPEARANCES
 2
                    (All appearing remotely)
 3
     COUNSEL ON BEHALF OF THE PLAINTIFF:
             Mr. James A. Milkey (via Realtime)
             RUSS AUGUST & KABAT
 4
             12424 Wilshire Boulevard, 12th Floor
             Los Angeles, California 90025
 5
             310.826.7474
             jmilkey@raklaw.com
 6
 7
     COUNSEL ON BEHALF OF THE DEFENDANT, HEWLETT PACKARD:
             Mr. Samuel Kassa (via Realtime)
             BAKER BOTTS
 8
             700 K Street
 9
             Washington, DC 20001
             202.639.7700
             sam.kassa@bakerbotts.com
10
11
     COUNSEL FOR DEFENDANT INTERNATIONAL BUSINESS
     MACHINES CORP.:
12
             Mr. Nate Ngerebara (via Realtime)
             Ms. Yimeng Dou (via Realtime)
13
             KIRKLAND & ELLIS LLP
             555 California Street
             San Francisco, California 94104
14
             415.439.1371
15
             Nate.ngerebara@kirkland.com
             Yimeng.dou@kirkland.com
16
             Mr. Kyle Calhoun (via Realtime)
             KIRKLAND & ELLIS LLP
17
             555 California Street
             San Francisco, California 94104
18
             415.439.1400
19
             Kyle.calhoun@kirkland.com
20
    VIDEOGRAPHER:
             Ms. Betsy Gomez, TransPerfect
21
     CERTIFIED STENOGRAPHIC / REALTIME REPORTER:
22
             Pat English-Arredondo
             CSR(TX), RMR, CRR, CLR
23
24
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| 8 | STAVROU EXHIBIT NO. 3 US Patent No. 8,943,500 dated 1-27-15, | 11 | |
| 9 | 19 pages | | |
| 10 | | | |
| 11 | (REPORTER'S NOTE: All quotations from exhibits are | | |
| 12 | reflected in the manner in which they were read into | | |
| 13 | the record and do not necessarily denote an exact | | |
| 14 | quote from the document.) | | |
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Page 5 1 (Following commenced at 9:02 a.m.) 2 THE VIDEOGRAPHER: We are on the 3 record on February 7, 2025, at approximately 9:03 a.m. Central time for the remote video 4 deposition of Dr. Angelos Stavrou in the matter of 5 6 VirtaMove Corp. versus Hewlett Packard Enterprise 7 Company. My name is Betsy Gomez, and I am the 8 videographer on behalf of TransPerfect Legal 9 Solutions. 10 11 Will counsel please introduce 12 themselves and the party they represent, beginning with the party noticing this proceeding. 13 14 MR. MILKEY: This is James Milkey 15 with the law firm of Russ, August & Kabat. I'm representing plaintiff, VirtaMove. 16 17 MR. NGEREBARA: This is Nathan Ngerebara with the law firm of Kirkland & Ellis on 18 behalf of IBM. 19 This is Sam Kassa from 20 MR. KASSA: 21 Baker Botts on behalf of Hewlett Packard Enterprise. 22 THE VIDEOGRAPHER: Anyone else? 23 (No response.) 24 THE VIDEOGRAPHER: Will the court 25 reporter please swear in the witness.

Page 6 1 THE REPORTER: Sir, will you go ahead 2 and raise your right hand to be administered the 3 oath? 4 ANGELOS STAVROU, 5 being called as a witness, and having been duly sworn, testified as follows: 6 7 THE WITNESS: Yes. 8 THE REPORTER: Thank you, sir. 9 EXAMINATION 10 BY MR. MILKEY: 11 Good morning, Dr. Stavrou. Ο. 12 Α. Good morning. Could you please state your full name for 13 0. 14 the record? 15 Yes. My full name is Angelos Stavrou. Α. Thank you. 16 Q. 17 And you're here to testify today as an expert on behalf of IBM and Hewlett Packard. Right? 18 19 Α. That is correct. Do you -- so you've offered two different 20 21 declarations regarding VirtaMove. Correct? 22 Α. That is correct. Okay. Do you have copies of those 23 Ο. declarations available? 24 25 I have physical copies. If you want to Α.

Page 7 introduce digital copies, I would be happy to take 1 2 them. 3 Ο. Yeah, so you're free to use physical copies of your declarations. I'm going to -- I'm 4 going to introduce as Exhibit 1 your declaration 5 regarding the IBM counterclaim patents and Exhibit 2 6 7 as your declaration regarding the VirtaMove '058 8 patent. (Marked was Stavrou Exhibit No. 1.) 9 (Marked was Stavrou Exhibit No. 2.) 10 11 (By Mr. Milkey) And like I said, feel 12 free to either use these digital copies or any physical copy that you have. Either is fine. 13 14 Α. Thank you. Give me a few seconds to 15 download them to make sure that I can open them. 16 Yes, I'm able to open them. Thank you. 17 Thank you. Ο. 18 So before we begin, did you do anything 19 to prepare for today's deposition? 20 Α. I did. 21 What did you do to prepare for today's Q. 22 deposition? I read my declarations and also I met 23 Α. with the counsel from Kirkland & Ellis and 24 25 Baker Botts.

- 1 Q. Okay. Did you meet with anyone else in
- 2 preparation for today's deposition?
- 3 A. Not beyond the lawyers from Kirkland &
- 4 Ellis and Baker Botts.
- 5 Q. Okay. And approximately how long did you
- 6 spend preparing for today's deposition?
- 7 A. I was here the past few -- past two days.
- 8 We didn't work the entire day. And, you know, I
- 9 would say two days but, you know, not the entire
- 10 time. Let's put it this way.
- 11 Q. Okay. And how long did you spend in
- 12 forming your opinions set forth in your declarations
- in these proceedings?
- 14 A. Oh, we spent months because this -- I
- 15 think -- I believe this started sometimes middle of
- 16 last year where I got involved in reading the
- 17 patents and going through the claims and the
- 18 specification of the patents.
- 19 So I would say it's been a few months
- 20 now.
- Q. Okay. Do you have an estimate of how
- 22 many hours you've spent over those few months?
- 23 A. I would not be precise, but I spent some
- 24 time on each of the patents. So I cannot give you
- 25 an exact estimate. I would have to look at my

Page 9 records, and I don't have them in front of me. 1 2 Okay. Understood. Ο. 3 So if we could look at your declaration regarding the IBM counterclaim patents. And this is 4 Exhibit 1. 5 6 Α. Yes. 7 And turning to Page 20, which is the Ο. first claim term, which is (as read): "A system ... 8 created during installation ... removed as part of 9 an uninstall." 10 11 Do you see that? 12 Α. Just give me a second. I'm trying to 13 navigate there. Yes. 14 Okay. And then going to Paragraph 49 on Ο. 15 Page 21, you state in that paragraph that (as read): "The claim language itself provides clarity to a 16 17 POSITA indicating that 'the one or more isolated environments are created during installation of the 18 19 one or more applications' and that, 'the one or more 20 isolated environments are copied to storage and then 21 removed as part of an uninstall of the one or more 22 applications.'" 23 Do you see that?

- 24 Α. Yes, that's correct.
- 25 Q. Okay. So you agree that in order to

- 1 practice this limitation, the one or more isolated
- 2 environments must be created during installation of
- 3 the one or more applications. Correct?
- 4 MR. NGEREBARA: Objection, form.
- 5 A. Can you please repeat the question just
- 6 to make sure that I have it correctly?
- 7 Q. (By Mr. Milkey) Yeah. So in order to
- 8 practice the limitation that you're discussing in
- 9 this section of your report starting on
- 10 Paragraph 46, you agree that the one or more
- 11 isolated environments must be created during
- installation of the one or more applications.
- 13 Correct?
- MR. NGEREBARA: Objection, form.
- 15 A. That is correct.
- 16 Q. (By Mr. Milkey) Then turning to Page 24
- of your declaration, Exhibit 1, do you see this is
- 18 where you address the claim term, "the system
- 19 resources"?
- 20 A. That's correct.
- 21 Q. Okay. And so my question is -- and,
- 22 sorry, before I get into this, do you have a copy of
- 23 the '500 patent?
- A. I don't have one. If you can introduce
- 25 the exhibit, I would be able to open it.

- 1 Q. Yeah, I will provide that.
- 2 And so this is introduced as Exhibit 3
- 3 the, US Patent No. 8,943,500. And, Dr. Stavrou, is
- 4 it okay if we refer to this as the '500 patent?
- 5 A. Sure.
- 6 (Marked was Stavrou Exhibit No. 3.)
- 7 Q. (By Mr. Milkey) If you could open up
- 8 Exhibit 3, the '500 patent, and go to the very last
- 9 page of it, there is Claim 19. Just let me know
- 10 when you're there.
- 11 A. 50?
- 12 O. Correct?
- 13 A. 50?
- Q. Correct, yeah. Column 14, Line 50.
- 15 A. Okay.
- 16 Q. And so you see in Claim 19 it refers to
- 17 "the system resources."
- 18 And so my question is, what provides
- 19 antecedent basis for the term "the system resources"
- 20 in Claim 19?
- 21 A. So as we see here, this is a dependent
- 22 claim and it depends on Claim 18.
- In Claim 18, I believe -- let me
- 24 check -- the word "additional resources" is included
- 25 as part of Claim 18, which is on the same -- on 14,

- 1 I believe, 39.
- 2 And a person of ordinary skill in the art
- 3 would have understood that basically the system
- 4 resources that are referred to in Claim 19 are
- 5 connected to the additional resources that are
- 6 mentioned in Claim 18.
- 7 THE REPORTER: Excuse me, Doctor.
- 8 Did you say "are" or "aren't"?
- 9 THE WITNESS: They are. I apologize.
- 10 They are.
- 11 Q. (By Mr. Milkey) Okay. So your opinion
- is that these system resources of Claim 19 refers to
- 13 the additional resources that Claim 18 recites. Is
- 14 that correct?
- 15 A. My opinion is that the patent recites
- 16 maintain mapping between the system resource and
- 17 out -- inside and outside the one or more isolated
- 18 environments in outside.
- 19 The system resources -- first (as read):
- 20 "the system resources inside the one or more
- 21 isolated environments and outside the -- is the
- 22 isolated environment, as recited in the claims.
- 23 So that here, to realize is that the
- 24 additional resources does not require an exhaustive
- 25 list of full system resources, other resources

- 1 basically specifically mentioned by the claims,
- 2 which is basically explicit.
- Also, if you want me to elucidate, I'm
- 4 happy to go on. You let me know.
- 5 Q. Yeah, I'm not quite sure I understand.
- 6 You previously testified, I thought, that the system
- 7 resources of Claim 19 was related to the additional
- 8 resources of Claim 18?
- 9 A. I don't think that's correct. What I
- 10 said is -- again, and I will repeat it just to be on
- 11 the same.
- 12 Resources basically -- the term "system"
- 13 resources inside and outside the one or more
- 14 isolated environments" indicates to a POSITA that
- 15 claims contemplate any system resources that would
- 16 satisfy the requirements of Claims 19 and -- 18 and
- 17 19, rather than requiring an exhaustive list of all
- 18 system resources.
- 19 So I want to clarify here that I didn't
- 20 mean an exhaustive list of all system resources but
- 21 specifically what I just mentioned.
- Q. Okay. So when Claim 19 recites "the
- 23 system resources inside the one or more isolated
- 24 environments," does that mean the same thing as any
- 25 system resources inside the one or more isolated

- 1 environments?
- MR. NGEREBARA: Objection, form.
- 3 A. I believe that I just mentioned that we
- 4 want to -- the term refers to both -- to system
- 5 resources inside the one or more isolated
- 6 environments and so -- and outside.
- 7 So it is -- it is important to maintain a
- 8 mapping between the system resource inside the one
- 9 or more isolated environments and outside.
- 10 So here, again, the patent specifications
- 11 confirm my understanding that the specification
- 12 provides examples of system resources, memories,
- 13 storage, and CPUs. CPUs that can be mapped from
- 14 outside to inside.
- 15 O. (By Mr. Milkey) Okay. But it doesn't
- 16 have to be all of those system resources inside and
- 17 outside that have to be mapped. Correct?
- 18 A. Are you referring to -- I apologize. Can
- 19 you please clarify?
- Do you refer to the system resources
- 21 inside or outside, so I can answer the question?
- 22 Q. I'm referring to both. So just backing
- 23 up a second.
- 24 The claim requires instructions for
- 25 maintaining mapping between the system resources

- 1 inside the one or more isolated environments and
- 2 outside.
- 3 So that we're on the same page, do you
- 4 understand this to require a mapping between system
- 5 resources inside the one or more isolated
- 6 environments, on the one hand, and
- 7 outside -- sorry -- and system resources outside the
- 8 system -- let me reask that.
- 9 Do you understand Claim 19 to require
- 10 instructions for maintaining mapping between, on the
- 11 one hand, system resources inside the one or more
- 12 isolated environments and, on the other hand, system
- 13 resources outside the one or more isolated
- 14 environments?
- 15 A. I think the argument here is reversed.
- 16 You need to be able to map resources outside of the
- 17 isolated environment to resources inside the
- 18 isolated environment because the outside has usually
- 19 more resources.
- 20 And it's allocating -- in this case not
- 21 allocating but mapping these resources inside the
- 22 isolated environments. So here the key component is
- 23 that the additional resources that are mentioned in
- 24 Claim 18 are further elucidated in Claim 19 by
- 25 basically mapping between the system resources

- 1 inside the one or more isolated environment and
- 2 outside.
- 3 So of course here you can -- the
- 4 mapping -- the mapping is reciprocal, so it doesn't
- 5 matter if you talk about inside or outside.
- THE REPORTER: Excuse me, Doctor.
- 7 You're going to have to slow down.
- 8 THE WITNESS: I'm sorry about that.
- 9 A. The mapping has two elements, so it
- 10 doesn't matter if you recite the first element,
- 11 which is inside in this case, to the outside.
- 12 So either you sit inside
- 13 mapping -- it's -- in reality the mapping refers to
- 14 resources on two ends. So it doesn't matter if you
- 15 start from the inside or the outside.
- 16 Q. (By Mr. Milkey) Okay. Understood.
- 17 A. I just want to be very clear. It's not
- 18 resources on the inside necessarily that map to the
- 19 outside. It can also be the reverse.
- 20 O. Correct. That makes sense.
- 21 So my question, then, is: The claim does
- 22 not require, in your opinion, instructions for
- 23 maintaining mapping between all of the system
- 24 resources inside the one or more isolated
- 25 environments and all of the system resources outside

- 1 the one or more isolated environments. Correct?
- 2 MR. NGEREBARA: Objection, form.
- A. As I read it, it does not make a
- 4 specification either way.
- 5 Q. (By Mr. Milkey) Okay. In your opinion,
- 6 does the claim require instructions for maintaining
- 7 mapping between just some of the system resources
- 8 inside the one or more isolated environments and
- 9 some of the system resources outside the one or more
- 10 isolated environments?
- MR. NGEREBARA: Objection, form.
- 12 A. The way that I personally read it is that
- there are resources, system resources, that are
- 14 being mapped. It's a generic term.
- 15 Now, I don't know if it's going to be all
- 16 the resources inside with all the resources outside
- or if it's going to be some of the resources inside;
- 18 but the claim, as it's written, it's not restrictive
- 19 in that sense.
- 20 But at the same time, again, there are
- 21 finite resources, system resources; and the examples
- 22 that I provided of system resources that include
- 23 memory, storage, and CPUs, are very traditional
- 24 system resources that are being used to create these
- 25 isolated environments.

- 1 Now, I don't know if there are
- 2 potentially -- the examples are not restrictive, so
- 3 maybe there are other resources that also can be
- 4 mapped.
- 5 But it's -- I would have understood it in
- 6 the plain and ordinary meaning of the system
- 7 resources, which is just a straightforward term that
- 8 does not require any -- any further, you know,
- 9 elucidation. Let's put it this way.
- 10 Q. (By Mr. Milkey) Okay. So for Claim 19,
- 11 for the limitation of Claim 19, is that satisfied if
- 12 there are instructions for maintaining mapping
- 13 between at least some system resources inside the
- 14 one or more isolated environments and at least some
- 15 system resources outside of the one or more isolated
- 16 environments?
- MR. NGEREBARA: Objection, form.
- 18 A. Again, the specific claim does not
- 19 mention any of that in the sense that it does
- 20 not -- it doesn't limit itself. It can be all or it
- 21 can be some. I don't see a way that restricts
- 22 itself to -- you know, there is no qualifier here.
- But, as I said, it's very obvious to me,
- 24 based on the spec, that the resources are
- 25 quantifiable term in our field.

- 1 And basically the mapping -- it basically
- 2 talks about mapping, which is actually -- as I said,
- 3 it is tied clearly to the fact that in Claim 18
- 4 there is the need of additional resources.
- 5 So these resources, these additional
- 6 resources are being provided by Claim 19 where, you
- 7 know, it talks about a mapping between a system
- 8 resources inside the one or more isolated
- 9 environments and outside.
- 10 Q. (By Mr. Milkey) Okay. And if you could
- 11 turn to Page 27 of Exhibit 1.
- 12 A. Give me just one second. I'm there.
- 13 Q. And you see this is where you begin
- 14 analyzing "appropriate for infrastructure"
- 15 configuration mapping. " Correct?
- 16 A. That's correct.
- 17 Q. Okay. Okay. And I want to turn to -- on
- 18 the next page in Paragraph 69, toward the bottom of
- 19 that paragraph you have a sentence that states (as
- 20 read): "Similarly, whether there is a conflict
- 21 between source and cloud infrastructure is an
- 22 objective analysis for the POSITA."
- Do you see that?
- A. Correct.
- Q. Okay. How would a POSITA perform the

- 1 objective analysis of whether there is a conflict
- 2 between source and cloud infrastructure?
- 3 A. In the spec of the patent there are
- 4 examples that basically -- that show, for instance,
- 5 that there might be configuration, infrastructure
- 6 configuration conflicts.
- 7 Sometimes also -- yes. So, to me, when
- 8 you have two infrastructures that you want to use,
- 9 there might be conflicts between them. And there
- 10 is a process --
- 11 Q. And --
- 12 A. I'm sorry. Go ahead. Apologize.
- 13 Q. Yeah. Sorry.
- 14 But -- so understood that there might be
- 15 conflicts between two infrastructure configurations.
- 16 My question specifically is: How would a
- 17 POSITA determine whether there is a conflict between
- 18 two infrastructure configurations?
- 19 A. So, for instance, in the '858
- 20 specification there is discussion that is not
- 21 limiting that shows that HP event filters are
- 22 associated with products from Hewlett Packard,
- 23 Palo Alto, can be used in the source environment and
- 24 how they can be mapped to IBM Tivoli monitoring
- 25 environment which is event filters?

- 1 So, in other words, the examples are
- 2 very spec- -- very clearly specified, a process that
- 3 you would follow. It's not limiting in any form or
- 4 fashion because, basically, it gives specific
- 5 examples to elucidate what the claims talk about.
- 6 Q. Okay. So you mentioned determining
- 7 whether there is a conflict between two
- 8 infrastructure configurations as an example of this
- 9 limitation.
- 10 Can you give me one example of how a
- 11 POSITA would determine whether there is a conflict
- 12 between two infrastructure configurations?
- 13 A. You want me to give you or do you want to
- 14 use examples from the spec?
- 15 Because, for example, in my mind one
- 16 option would be to see if there is enough storage,
- 17 for instance, between the two -- again, this is not
- 18 a limiting -- a limiting example. But there are
- 19 resource conflicts that can potentially arise.
- I mean, and this is my personal opinion.
- 21 Again, the claims and the spec.
- 22 Another option would be, for example, to
- 23 use discover sourcing for such logs. Again, in the
- 24 patent it's under '858, Column 32 -- 36 --
- 25 Column 32, Lines 33 through 36.

- 1 So it is very common for us -- for people
- 2 that basically perform source to -- let's call it
- 3 for lack of -- I mean, to destination, the
- 4 transformation, to take a look at the -- to create
- 5 mapping, infrastructure configuration mapping from
- 6 this -- from an origin to a target, from a source to
- 7 a target.
- Q. Okay.
- 9 A. And, by the way, there are cloud
- 10 infrastructure configuration standards that can be
- 11 used here, too. So it's not -- it's not an
- 12 arbitrary process.
- 13 Q. Okay. So there are different ways to
- 14 determine conflicts between infrastructure
- 15 configurations?
- 16 A. Let me ask a clarification. When you
- 17 say -- so infrastructure conflicts exist. The way
- 18 that you can discover them, you might take different
- 19 paths. Some of these paths might be completely
- 20 identical in the results.
- 21 Q. You said some of these paths might be
- 22 completely identical in the results. Are all the
- 23 paths completely identical in the results?
- 24 A. So the answer to that question, it is yes
- 25 if you use the proper standard and you perform the

- 1 process properly.
- Of course, I mean, if you use the wrong
- 3 tools or you -- you know, you have to -- that's the
- 4 reason that the patent basically provides not only
- 5 examples but basically -- it talks about the
- 6 discovery process of the sourcing infrastructure,
- 7 how it's being mapped.
- 8 There is a lot of detail because that's
- 9 important to be able to create consistent and
- 10 conflict-free mappings.
- In other words, the devil can be in the
- 12 details in the sense that there are many different
- 13 ways that information can be used. But in this
- 14 specific patent it's pretty clear for a POSITA how
- 15 this information is going to be used.
- 16 Q. Okay. If you could go to Page 38 of
- 17 Exhibit 1.
- 18 A. I'm there.
- 19 Q. You see this is the section -- the very
- 20 bottom of Page 38 is the section that addresses the
- 21 "non-functional requirement" limitation.
- Do you see that?
- 23 A. The non-functional requirement, yes, sir.
- Q. Okay. And I want to ask about
- 25 Paragraph 94 of your declaration in particular. And

- 1 this is -- it begins on Page 40.
- 2 A. Yes. I'm there.
- 3 Q. And on Paragraph 94, about halfway down,
- 4 you have a sentence that says: "Thus, the patent
- 5 clearly provides examples illustrating the meaning
- 6 of 'non-functional requirements' in some
- 7 exemplary -- in some exemplary embodiments,
- 8 including the 'SLAs' service level agreement can
- 9 be non-functional requirements."
- 10 Do you see that?
- 11 A. Yes.
- 12 Q. So you say here that (as read): "SLAs
- 13 can be nonfunctional requirements."
- 14 My question is: Are SLAs non-functional
- 15 requirements?
- 16 A. Well, SLAs have -- SLAs can be -- is an
- 17 example, is provided as an example here of
- 18 non-functional requirement.
- 19 Within the SLA, the SLA can have
- 20 non-functional requirement portions, but also it can
- 21 have functional requirement portions based on the
- 22 way it's specified.
- So in general SLA can have both. In this
- 24 case, it's being used as an example for the portion
- 25 of SLA that can be used for non-functional

- 1 requirements.
- 2 Q. And then if you could go to Page 42 of
- 3 your declaration, Exhibit 1. You see this is
- 4 Section V addressing the "module" limitation?
- 5 A. Yes.
- 6 Q. What is a software module?
- 7 A. So a software module has to be -- it has
- 8 to be provided in context.
- 9 And in this case, a module is -- the
- 10 specification provides corresponding structure for
- 11 the term "module."
- 12 For example, has -- I mean, in my opinion
- 13 a module is a very well-defined term and has, in
- 14 this specific case, a sufficient definite structure
- 15 to be able to go with.
- Like, I mean, you can go to the claims.
- 17 But in the claims, the module, it talks about (as
- 18 read): "distinct software module that comprised
- 19 discovery tool module, a description module, and an
- 20 infrastructure comparison and engine module."
- 21 So the module is not considered in vacuum
- 22 only. It's been given a meaning. And that is
- 23 actually in Claim 18.
- Q. Okay. That's helpful. So in Claim 18
- 25 you mentioned a discovery tool module. What is a

- 1 discovery tool module?
- 2 A. A discovery tool module is described as
- 3 being basically -- "having a source management
- 4 infrastructure, at least one source infrastructure
- 5 management component, wherein said at least one
- 6 source infrastructure management component is an
- 7 instance of an image and wherein said at least one
- 8 source infrastructure management
- 9 component is running in a" --
- 10 (Brief off-the-record discussion.)
- 11 A. As I was saying and I will repeat,
- 12 "discovering, in a source computing system having a
- 13 source management infrastructure, at least one
- 14 source infrastructure management component, wherein
- 15 said at least one source infrastructure management
- 16 component is an instance of an image, and wherein
- 17 said at least one source infrastructure management
- 18 component is running in a customer environment."
- 19 O. Okay. So is that the definition of a
- 20 discovery tool module?
- 21 A. I believe that is what is basically --
- 22 it's highlighted in the claim, I think, which is
- 23 dependent on Claim 1.
- Q. And what is a description module?
- 25 A. So (as read): "The 'description module'

- 1 conducts 'querying a database to obtain a
- 2 description of a target cloud infrastructure in the
- 3 manner specified in Claim 1 using the components
- 4 (for example, a database) again, recited in
- 5 Claim 1."
- 6 And let me also add (as read): "The
- 7 'discovery tool module' conducts 'discovering in a
- 8 source computing system... 'in the manner again
- 9 specified in Claim 1 using the components ('source
- 10 computing system having a source management
- 11 infrastructure, at least one source infrastructure
- 12 management component') as recited in Claim 1."
- 13 Q. Okay. And what is an infrastructure
- 14 comparison engine module?
- 15 A. "The 'infrastructure comparison engine
- 16 module' conducts the 'analysis of said at least one
- 17 source infrastructure management component using
- 18 said description of said target cloud
- 19 infrastructure...' in the manner specified in
- 20 Claim 1 using the components ('at least one
- 21 source') -- (for example, 'at least one source
- infrastructure management component')."
- 23 Q. Turning back to Page 24 of your
- 24 declaration, Exhibit 1.
- 25 A. Just give me a second.

Page 28 1 21? 2 24. Ο. 3 Α. I'm there. Okay. And, again, just to reorient 4 Q. 5 ourselves, this is addressing the system resources limitation of Claim 19 of the '500 and '038 patents. 6 7 Correct? At the bottom of Page 24, that's correct. 8 Α. 9 So on Paragraph 59 on Page 25, the last Ο. 10 sentence of Paragraph 59 says, "A POSITA would 11 understand that the term 'the system resources' can 12 refer to different sets of resources depending on the specific context..." 13 14 Do you see that? 15 T do. Α. Doesn't the fact that this term might 16 refer to different things depending on the specific 17 context make it indefinite? 18 19 MR. NGEREBARA: Objection, form. Again, I want to be clear here that it 20 Α. 21 is -- my sentence continues. It says, "...including 22 only the relevant resources associated with the operation described in the claim as executed in the 23 particular environments." 24 25 It is very clear what "the system

- 1 resources" refer to. And the fact that they are
- 2 different set of resources, it means that basically
- 3 you might -- you're allowed to create mapping
- 4 between different sets of resources, all of which
- 5 are very well-defined.
- 6 But you don't have to use the same set of
- 7 resources every time you perform the mapping. You
- 8 can use one or more resources, set of resources; and
- 9 that's exactly what my sentence says here.
- 10 Q. (By Mr. Milkey) So it's your opinion
- 11 that the term "the system resources" doesn't mean a
- 12 different thing depending on specific context. Is
- 13 that correct?
- MR. NGEREBARA: Objection, form.
- 15 A. The system resources can be -- on you
- 16 assigned resources, the context at -- the context
- 17 and the needs of the application, for example, is an
- 18 example.
- 19 The needs of the application inside an
- 20 isolated environment will dictate potentially the
- 21 different -- the resources that you will be using.
- To give you an example, if the
- 23 application requires more CPU, then you -- a set of
- 24 resources might be CPU.
- 25 If the application requires additional

- 1 memory and storage, then the set of resources might
- 2 become memory and storage.
- 4 you might have different options for that mapping,
- of the additional resources. Not options of how you
- 6 do the mapping, but basically what you will do.
- 7 MR. MILKEY: We've been going about
- 8 45 minutes. It's a little early, but I'm going to
- 9 switch gears pretty soon to go on to your other
- 10 declaration.
- 11 So would it be okay if we took a
- 12 ten-minute break?
- THE WITNESS: As far as I'm
- 14 concerned, no problem.
- 15 THE VIDEOGRAPHER: The time is
- 16 9:44 a.m., and we are going off the record.
- 17 (Recess taken at 9:44 a.m.,
- 18 resuming 9:55 a.m.)
- 19 THE VIDEOGRAPHER: The time is
- 20 9:55 a.m., and we are going on the record.
- Q. (By Mr. Milkey) Welcome back,
- 22 Dr. Stavrou.
- 23 Did you discuss the substance of your
- 24 deposition with counsel during the break?
- 25 A. No.

- 1 Q. If you could open up Exhibit 2, which is
- 2 your declaration regarding the VirtaMove '058
- 3 patent.
- 4 A. Just give me one second.
- 5 I'm there.
- 6 Q. And if you could go to Page 13 of that
- 7 declaration. This is the section that -- this is
- 8 the start of the section that addresses the critical
- 9 system elements limitation.
- 10 A. (Reviewing.) Are you talking about
- "'critical system elements'/'operating system
- 12 critical element -- system elements'/'shared library
- 13 critical system elements'"?
- 14 O. Correct.
- 15 If you go to the next page on
- 16 Paragraph 36, you have a discussion of Appendix C,
- 17 which is a publication titled "Robustness Testing of
- 18 the Microsoft Win32 API."
- 19 Do you see that?
- 20 A. That is correct.
- Q. And the third sentence of Paragraph 36
- 22 states, "When researchers tested the robustness of
- 23 six Windows variants and the Linux operating system
- 24 using applications that use individual operating
- 25 system services one at a time through system calls,

- 1 they found that what constitutes a critical service
- 2 depends on the operating system."
- 3 Do you see that?
- 4 A. That is correct.
- 5 Q. Why does what constitutes a critical
- 6 service depend on the operating system?
- 7 MR. NGEREBARA: Objection, form.
- 8 A. So in this specific study the researchers
- 9 created classes of what we call operating system
- 10 services, and they tried to quantify -- again, the
- 11 word "critical" here was quantifying reliability of
- 12 the service, in terms of failures, so there was a
- 13 very clear measure of what constitutes critical
- 14 service; and it's very well-defined in the paper
- 15 that is referred to in Appendix C.
- So the four specific set of researchers,
- 17 what constitute the critical service depended
- 18 basically on the degrees of failures.
- 19 And I'm mentioning they have (as read):
- 20 "...degrees of failures from catastrophic (the
- 21 operating system seized to function) to even
- 22 nonsignificant, that (the application was able to
- 23 complete basically without loss of functionality."
- Q. (By Mr. Milkey) Okay. If a system
- 25 caused a catastrophic failure, does that mean that

Page 33 it's a critical system call? 1 2 MR. NGEREBARA: Objection, form. MR. KASSA: Same objections. 3 Α. In the sense that we need to understand 4 5 if it's catastrophic failure, clearly it is creating a significant disruption. 6 7 And for some people that would be critical, but there are also failures that can be 8 considered critical because -- without necessarily 9 creating a catastrophic failure. 10 11 Because the term "critical," it's a term 12 of degree and actually this is exactly what this paragraph is -- or the paper is trying to 13 14 illustrate, that there are two points here. 15 One point is that not all operating systems depend even with the same classes 16 17 of services, generic class of services. 18 They have ways of dealing with failure 19 and they're not necessarily catastrophic. And at 20 the same time that there is the critical, it 21 requires quantification -- it's a term of degree. 22 Ο. (By Mr. Milkey) So but is a catastrophic error necessarily a critical error? 23 24 MR. NGEREBARA: Objection, form. 25 Same objection. MR. KASSA:

- 1 A. Actually that's exactly the point here,
- 2 that for some operating system, the same -- the same
- 3 function could cause catastrophic failure. But for
- 4 some others, it did not.
- 5 So a catastrophic here is -- is -- in
- 6 terms of severity, it's the ultimate severity. But
- 7 even if we take that ultimate catastrophic severity,
- 8 it's not applied uniformly across the operating
- 9 systems.
- 10 Q. (By Mr. Milkey) Okay. Do you have the
- 11 PDF of Exhibit 2 open?
- 12 A. Exhibit 2?
- 13 Q. That's your declaration.
- 14 A. Yes, I do.
- 15 Q. Okay. Could you go to PDF Page 75? This
- 16 is in Appendix C.
- 17 A. Just give me one second because I'm
- 18 scrolling.
- 19 Are you referring to the paper, the
- 20 Robustness Testing of the Microsoft Windows 32 API?
- 21 Q. Yes.
- 22 A. I'm there.
- 23 Q. Okay. And so this is PDF Page 75, but on
- 24 Page 7 of that paper, of the Robustness Testing
- 25 paper, do you see at the top right of that Page 7 of

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the Robustness Testing paper that there is a

Listing 1?

- 3 A. Yes.
- 4 Q. Okay. And it says that (as read):
- 5 "Listing 1 is a line of code that produces
- 6 catastrophic failures on Windows 95, Windows 98, and
- 7 Windows CE."
- 8 Correct?
- 9 A. Correct.
- 10 Q. Okay. So does that mean that, at least
- 11 for Windows 95, Windows 98, and Windows CE, that
- 12 this system call is a critical system call?
- MR. NGEREBARA: Objection, form.
- MR. KASSA: Same objection.
- 15 A. No. What Listing 1 says is that the
- 16 specific line of code produces catastrophic failures
- 17 for these three specific operating systems.
- 18 Catastrophic failures in the light of the operation
- 19 that is performed.
- 20 Q. (By Mr. Milkey) Okay. And that would be
- 21 a critical failure?
- MR. NGEREBARA: Objection, form.
- MR. KASSA: Same objection.
- A. That would be a catastrophic failure,
- 25 according to what's recited in the paper. And I

- 1 want to preface it, that not all -- first of all,
- 2 not all of these catastrophic failures can be
- 3 repeated. Some of them are not repeatable. And,
- 4 also, they don't have the same, what we call,
- 5 failure rates.
- 6 So, for example, you might have a
- 7 catastrophic failure, but it might be rare. So that
- 8 code here that you recited in Listing 1 -- and,
- 9 again, I'm giving this as an example -- in other
- 10 operate- -- even other flavors of Windows operating
- 11 system might not have the same rate and effect of
- 12 catastrophic failure.
- In other words, it might not have created
- 14 repeat -- it might not have caused repeatable
- 15 catastrophic system failures. It's actually -- in
- 16 the next paragraph on this same paper, it says
- 17 Windows 95, Windows 98, and Windows 98 SE exhibited
- 18 similar...
- 19 Again, here is important. The word
- 20 "similar" failure rates, including a number of
- 21 functions that cause repeatable catastrophic system
- 22 crash failures.
- 23 Q. (By Mr. Milkey) So in your declaration
- 24 you said that this paper relates to researchers
- 25 finding that what constitutes a critical service

- 1 depends on the operating system.
- Where do -- where in Appendix C in this
- 3 Robustness Testing paper do they describe anything
- 4 as a critical service that depends on the operating
- 5 system?
- 6 MR. NGEREBARA: Objection, form.
- 7 MR. KASSA: Same objection.
- 8 A. So in the literature, one way of
- 9 quantifying -- let me back off.
- 10 In the literature there are many
- 11 different ways of quantifying what is critical and
- 12 the degree of criticality. However, in order to
- 13 define what is critical you need to have what we
- 14 call a context.
- 15 You need to understand basically the
- 16 different attributes that goes to the word
- 17 "critical."
- 18 In this specific example, the researchers
- 19 identified critical, and that's why criticality is
- 20 not basically mentioned. It mentioned catastrophic
- 21 failure. It doesn't mention critical failure. It's
- 22 based on the number of failures that you can have
- 23 and the degree of failure.
- 24 So you see here that there are two
- 25 dimensions:

- One dimension is, how many failures do we
- 2 have?
- 3 And the other dimension is, what is the
- 4 severity? Or here, in this case, catastrophic
- 5 versus noncatastrophic versus -- you know, there are
- 6 different grades, if I want to call it, failure.
- 7 And the reason that this is recited is
- 8 because different operating systems, even utilizing
- 9 same classes of services, exhibited different
- 10 degrees of dependence on those services.
- In other words, what is critical for one
- 12 operating system -- no, what is catastrophic, not
- 13 critical, I apologize.
- What is catastrophic or reliability-wise
- 15 critical, which is just one parameter that you can
- 16 quantify criticality, is completely different for
- 17 Windows 95, Windows 98, and Windows -- you know, and
- 18 Windows CE, for example -- as an example.
- 19 And this paper goes into much more detail
- 20 explaining that.
- Q. Okay. What is an example of a critical
- 22 service for any operating system in Appendix C?
- 23 MR. NGEREBARA: Objection, form.
- MR. KASSA: Same objection.
- 25 A. Again, the paper does not talk about

- 1 criticality here. The paper talks about one element
- 2 of what can constitute a degree of critical.
- And I want to emphasize the word "degree"
- 4 here because it talks about failures. And one way
- 5 of researchers in reliability theory, one way
- 6 of -- and by the way, that's not the only way.
- 7 To quantify the importance of a failure
- 8 and to identify catastrophic versus noncatastrophic
- 9 failures in lieu of using -- I would say, again --
- 10 and, again, I'm putting it with quotes like
- 11 translating, critical to reliability, degree of
- 12 liability of the system.
- 13 You have to take into consideration the
- 14 type of failure and how repeatable or rare is that
- 15 failure, including this -- up to this date, when we
- 16 have a failure in a system, it might be
- 17 catastrophic, but how probable it is to happen is
- 18 important.
- 19 So the criticality in this specific
- 20 context -- and I'm counting it as a context -- is
- 21 important if we took -- take the, you know,
- 22 liability part, which is not what the paper does.
- But if we wanted to be able to translate
- the paper language in the path of reliability, even
- 25 then it's very ambiguous.

- 1 Q. (By Mr. Milkey) Okay. That's helpful.
- Okay. And then if we could go to Page 20
- 3 of your declaration, Exhibit 2.
- 4 A. I apologize. Just give me one second and
- 5 I will shift.
- I'm on Page 20.
- 7 Q. And this is regarding the functional --
- 8 this is the start of the section where you address
- 9 the "functional replicas" limitation. Correct?
- 10 A. Correct.
- 11 Q. Okay. And if we go to Paragraph 58 on
- 12 Page 22, you quote from the specification of the
- 13 '058 patent, which says, in part: "The CSE library
- 14 includes replicas or substantial functional
- 15 equivalence or replacements of kernel functions."
- 16 Do you see that?
- 17 A. I do.
- 18 O. In your opinion, would a person of skill
- in the art be able to determine whether two
- 20 different kernel functions perform substantially the
- 21 same function?
- MR. NGEREBARA: Objection, form.
- MR. KASSA: Same objection.
- 24 A. In my opinion, a POSITA would not be able
- 25 to quantify, in this specific case, what

- 1 substantial -- the word "substantial" means.
- 2 Also, the word "equivalent" is, again,
- 3 ambiguous. In software engineering, we have
- 4 different means of identifying software
- 5 functionality attributes that identify equivalence.
- 6 So equivalence has to be quantified.
- 7 Is it equivalent because they have the
- 8 same -- they have the same APIs?
- 9 Do they turn the same -- do they get the
- 10 same inputs and outputs?
- 11 There are a lot of different attributes
- 12 that I could sit down and list here that define what
- 13 two software -- sorry -- two -- in this case you
- 14 mentioned kernel functions and I will stick with
- 15 that. Two kernel functions, how they can be
- 16 compared.
- 17 So that's not defined anywhere here. So
- 18 to me, it's not clear.
- 19 Q. (By Mr. Milkey) And going back up a page
- 20 to Page 21. And this is Paragraph 55 I want to ask
- 21 you about.
- The second sentence of Paragraph 55
- 23 states: "That a CSE is 'replicated' by being
- 24 'repeated' would suggest to a POSITA that the CSE is
- 25 an 'exact copy of a CSE in the operating system.'"

Page 42 1 Do you see that? 2 I do. Α. 3 0. Okay. So I'm trying to understand what you mean by that. 4 In particular, if one kernel function is 5 an exact copy of another kernel function, would both 6 7 kernel functions be replicas of one another? MR. NGEREBARA: Objection, form. 8 9 MR. KASSA: Same objection. 10 Again, if they are exact, identical Α. copies -- I'm talking every form, in terms of 11 12 software -- and they also reside in the kernel space, they're not being moved from one space to 13 another, basically if they are copied next to each 14 other and they are next to each other, then the word 15 "replica" here would mean a copy. And I would 16 17 agree. 18 MR. MILKEY: Okay. I have no further 19 questions. 20 (Following commenced at 10:14 a.m.) 21 MR. NGEREBARA: How about we take a two-minute break? I doubt we will have any 22 questions, but let me consult with my colleagues and 23 we will be back. 24 25 MR. MILKEY: Okay.

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     10:14 a.m., and we are going off the record.
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                     (Recess taken at 10:14 a.m.,
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                    resuming at 10:18 a.m.)
                    THE VIDEOGRAPHER: The time is
 5
     10:18 a.m., and we are going on the record.
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 7
                    MR. NGEREBARA: We have no questions.
     No further questions at this point.
 8
                    MR. KASSA: And HPE also has no
 9
     further questions at this point.
10
11
                    MR. MILKEY: All right. Let's go off
12
     the record.
                    THE VIDEOGRAPHER: The time is
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     10:19 a.m., and we are going off the record.
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            (Deposition concluded at 10:19 a.m.)
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| 5 | I, DR. ANGELOS STAVROU, have read the | | |
| 6 | foregoing deposition and hereby affix my signature | | |
| 7 | that same is true and correct, except as noted | | |
| 8 | above. | | |
| 9 | | | |
| 10 | | | |
| 11 | DR. ANGELOS STAVROU | | |
| 12 | | | |
| 13 | THE STATE OF: | | |
| 14 | COUNTY OF: | | |
| 15 | BEFORE ME,, on this day | | |
| 16 | appeared DR. ANGELOS STAVROU, known to me or proved | | |
| 17 | to me on the oath of or through or identity card or | | |
| 18 | other document] to be the person whose name is subscribed to the foregoing instrument and | | |
| 19 | acknowledged to me that they executed the same for purposes and consideration therein expressed. | | |
| 20 | Given under my hand on this day | | |
| 21 | of, 2025. | | |
| 22 | | | |
| | Notary Public in and for the | | |
| 23 | State of My commission expires: | | |
| 24 | | | |
| 25 | Job No.: 10232 | | |

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              IN THE UNITED STATES DISTRICT COURT
 2.
               FOR THE EASTERN DISTRICT OF TEXAS
                        MARSHALL DIVISION
 3
                 CASE NO. 2:24-CV-00093-JRG-RSP
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 5
     VIRTAMOVE, CORP.,
       Plaintiff,
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 7
     vs.
 8
     HEWLETT PACKARD ENTERPRISE COMPANY,
 9
      Defendant.
10
                CASE NO. 2:24-CV-00064-JRG-RSP
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12
     VirtaMove, CORP.,
       Plaintiff,
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14
     vs.
     INTERNATIONAL BUSINESS MACHINES CORP.,
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16
       Defendant.
                   REPORTER'S CERTIFICATION
17
             VIDEOTAPED / REALTIMED DEPOSITION OF
18
                      DR. ANGELOS STAVROU
                        FEBRUARY 7, 2025
19
       I, Pat English-Arredondo, CSR, RMR, CRR, CLR,
20
21
     Certified Shorthand Reporter in and for the State of
22
     Texas, hereby certify to the following:
23
       That the witness, DR. ANGELOS STAVROU, was duly
24
     sworn by the officer and that the transcript of the
25
     oral deposition is a true record of the testimony
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Page 47 given by the witness; 1 2 I further certify that pursuant to FRCP Rule 30(f)(1) that the signature of the deponent: 3 __X___ was requested by the deponent or a party 4 5 before the completion of the deposition and returned within 30 days from date of receipt of the 6 transcript. If returned, the attached Changes and 7 Signature Page contains any changes and the reasons 8 therefor; 9 10 ____ was not requested by the deponent or a party 11 before the completion of the deposition. I further certify that I am neither counsel for, 12 13 related to, nor employed by any of the parties or attorneys in the action in which this proceeding was 14 taken, and further that I am not financially or 15 16 otherwise interested in the outcome of the action. Certified to by me this 11th day of February, 17 2025. 18 19 Pat English-Arredondo, 20 CSR (TX), RMR, CRR, CLR Texas CSR 3828 Expiration Date: 4/30/2026 21 22 TransPerfect Legal Solutions 216 East 45th Street, Suite 903 New York, NY 10017 23 212-400-8845 Depo@TransPerfect.com 24 25 Job No. 10232

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